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# Administration of Myelin Basic Protein Peptides Encapsulated in Mannosylated Liposomes Normalizes Level of Serum TNF- α and IL-2 and Chemoattractants CCL2 and CCL4 in Multiple Sclerosis Patients

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## Abstract

© 2016 Yakov Lomakin et al.We have previously shown that immunodominant MBP peptides encapsulated in mannosylated liposomes (Xemys) effectively suppressed experimental allergic encephalomyelitis (EAE). Within the frames of the successfully completed phase I clinical trial, we investigated changes in the serum cytokine profile after Xemys administration in MS patients. We observed a statistically significant decrease of MCP-1/CCL2, MIP-1β/CCL4, IL-7, and IL-2 at the time of study completion. In contrast, the serum levels of TNF-α were remarkably elevated. Our data suggest that the administration of Xemys leads to a normalization of cytokine status in MS patients to values commonly reported for healthy subjects. These data are an important contribution for the upcoming Xemys clinical trials.

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